

REMARKS

Applicant's attorney thanks the Examiner for his comments. Claims 1 and 25 have been amended to state that the absorbent binder desiccant composition comprises water and a water-soluble ionic absorbent binder polymer having an alkoxysilane functionality and undergoing spontaneous crosslinking within about 10 minutes after application to a substrate at a temperature of about 120° C or less, to reach an absorbent capacity of at least one gram of fluid per one gram of polymer using the centrifuge retention capacity test, and a desiccant component.

Claim 14 has been amended to state that the absorbent binder desiccant composition comprises water, a water-soluble absorbent binder polymer component, and a desiccant component.

Claims 1, 14 and 25 have been further amended to state that the absorbent binder polymer spontaneously crosslinks by hydrolysis of the alkoxysilane functionality and subsequent removal of the water after the absorbent binder desiccant structure (or absorbent binder component) is applied to the substrate. Also, domains of a desiccant component are dispersed within the absorbent binder polymer.

Support for "absorbent binder" polymer is found on page 3, lines 19-25, and page 5, line 20 – page 6, line 2. Support for "spontaneous crosslinking...after application to a substrate" is found on page 11, lines 14-27. Support for "domains of a desiccant component dispersed within the absorbent binder polymer" is found on p. 3 lines 17-19.

The term "spontaneous crosslinking" is defined in the specification as "crosslinking which occurs without radiation, catalysis or any other inducement other than the specified temperature of about 120° C or less..." (p. 11 lines 18-21). No other meaning is intended by the amendment to the claims.

a) Claim Rejection Based On Harada et al. In View Of Gander

The rejection of Claims 1-10, 12-21, and 23-27 under 35 U.S.C. § 103(a) as obvious over U.S. Patent 5,853,867 (Harada et al.) in view of U.S. Patent 3,951,893 (Gander) is respectfully traversed.

Harada et al. does not disclose a water-soluble absorbent binder polymer as required by Claims 1, 14 and 25, which spontaneously crosslinks after application to a

substrate. As explained above, “spontaneous crosslinking” precludes the use of a catalyst or means of inducement. Harada et al. induces crosslinking of a cationic polymer and an anionic polymer using a crosslinking agent (Col. 5 lines 1-4, Col. 6 lines 28-32). The crosslinking is not “spontaneous” as required by Applicant’s claims.

Furthermore, neither the cationic absorbent polymer nor the anionic absorbent polymer contains an alkoxysilane functionality as required by Applicant’s claims. Accordingly, neither absorbent polymer crosslinks “by hydrolysis of the alkoxysilane functionality and subsequent removal of the water” after being applied to a substrate.

Furthermore, there is no evidence that either absorbent polymer disclosed in Harada et al. crosslinks “after application to a substrate” as required by Claims 1, 14 and 25. There is no evidence that either polymer crosslinks “within about 10 minutes...at a temperature of about 120° C or less, to reach an absorbent capacity of at least one gram of fluid per gram of polymer” as required by Claims 1 and 25. The latter limitation necessarily requires the absorbent polymer to have a lower absorbent capacity before it crosslinks.

When an Examiner relies on scientific theory, evidentiary support for the existence and meaning of the theory must be proved. MPEP 2144.02. No such evidence has been presented.

Furthermore, Harada et al. does not disclose domains of a desiccant component dispersed within the absorbent binder polymer component, as required by Claims 1, 14 and 25. The Examiner alludes to acetate fibers disclosed at Col. 4 lines 38-40, and starches disclosed at Col. 8 lines 27-31. Yet the acetate fibers at Col. 4 lines 38-40 constitute part of a fibrous sheet supporting member (substrate), and are not dispersed within the absorbent binder polymer component. The starches at Col. 8 lines 27-31 are described as embodiments of the absorbent binder polymer itself, and do not constitute domains dispersed within an absorbent binder polymer. Applicant’s claims require an absorbent binder polymer and domains of a desiccant (i.e. two distinct components).

Gander is cited as disclosing a silane crosslinked interpolymer formed using a silane acrylate polymer having an alkoxysilane functionality. However, the disclosed polymer is not an absorbent polymer and has no bearing on the absorbent binder desiccant

compositions recited in Applicant's claims. The polymer disclosed in Gander is a water-impermeable polymer used to make water barrier films (Abstract). Furthermore, the alkoxysilane is in the form of a detached crosslinking agent, and does not form part of a polymer which crosslinks (Col. 5 lines 35-45).

While the disclosed barrier films are used in absorbent applications, they are used only as supporting members for absorbent layers such as paper (Col. 7 line 58 – Col. 9 line 19). The Examiner opines that it would have been obvious to pull the alkoxysilane crosslinking agent from the monomer mixture of Gander and attach it to the polymer(s) of Harada et al. To the contrary, it would not have been obvious to pull the alkoxysilane crosslinking agent from the water barrier film polymer mixture of Gander and attach it to the water absorbent polymer(s) of Harada et al. A person skilled in the art would have found no suggestion in the art, and no motivation to do this.

Furthermore, Gander (like Harada et al.) does not disclose a water-soluble absorbent binder polymer which undergoes spontaneous crosslinking. Instead, a silane crosslinking agent is employed to crosslink a polymer which is formed from first and second monomers (Col. 5 lines 38-46). The crosslinking of the polymer cannot occur spontaneously (i.e. without the use of a separate agent) because the alkoxysilane is provided as a separate agent, detached from the starting polymer. The polymer of Gander is not water-soluble because it forms a water barrier film. As explained above, the polymer of Gander is not an absorbent binder polymer.

Furthermore, the polymer composition of Gander is based on an organic solvent and does not contain water (Col. 1 lines 42-46). The disclosed polymer composition does not contain domains of a desiccant dispersed within the polymer, as required by Applicant's claims.

Finally, the polymer of Gander does not crosslink "by hydrolysis of the alkoxysilane functionality and subsequent removal of water" as required by Applicant's claims. Given that the alkoxysilane starts as a detached crosslinking agent which must form at least two chemical bonds to cause crosslinking of the polymer, it is not apparent how further crosslinking by hydrolysis and condensation could even occur. Again, when the Examiner relies on scientific theory, he is required to provide evidentiary support.

MPEP 2144.02

In summary, numerous independent claim limitations are not disclosed by Harada et al. or Gander. Furthermore, the references are not combinable because they relate to divergent and irreconcilable technologies. Harada et al. is directed to an absorbent binder polymer, whereas Gander is directed to a polymer forming a water barrier film.

No claim is rendered obvious. This rejection should be withdrawn.

b) Conclusion

For the foregoing reasons, Applicant believes that the claims are in condition for allowance. If the Examiner detects any unresolved issues, then Applicant's attorney requests a telephone call from the Examiner, and an opportunity to resolve the issues by telephone.

Respectfully submitted,



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